ATTACHMENT A

CALIFORNIA AIR TOXICS "HOT SPOTS" INFORMATION AND ASSESSMENT ACT (AB 2588)

2013 Air Toxics "Hot Spots" Program Report for San Diego County

(Date of Adoption)

SAN DIEGO COUNTY
AIR POLLUTION CONTROL DISTRICT
10124 Old Grove Road
San Diego, CA 92131

2013 Air Toxics "Hot Spots" Program Report for San Diego County

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INTRODUCTION

The California Air Toxics "Hot Spots" Information and Assessment Act (AB 2588) was enacted by the Legislature in 1987 to address public concern over the release of toxic air contaminants into the atmosphere. The law requires facilities emitting toxic substances to provide local air pollution control districts with information to identify sources of toxic air contaminants, assess air toxic problems, locate resulting "hot spots," notify persons that may be exposed to significant risks, and develop effective strategies to reduce potential risks to the public.

A requirement of the Air Toxics "Hot Spots" Information and Assessment Act (Section 44363 of the California Health and Safety Code) is for local air pollution control districts to provide the public with an annual progress report on the program. This report fulfills that requirement by providing information about emission inventories, approved health risk assessments (HRA), public notification procedures, and steps undertaken to reduce public health risks. State and local health officials may use the report to establish priorities for developing and implementing air toxic control measures to protect public health.

This report summarizes the AB 2588 program elements, the current status of the program in San Diego County, stationary and mobile emissions estimates, results of local HRAs, current status of public notifications, and conclusions drawn from the program to date. Stationary source emission estimates, by facility, are also available on the San Diego County Air Pollution Control District's (District) website (http://www.sdapcd.org) by selecting the Emissions Inventory & Toxics button and then selecting Facility Emissions for San Diego County 1997 - 2012. In addition, stationary source emissions inventories are available upon request for those without internet access.

Although toxic air contaminant emissions from stationary sources in San Diego County have been reduced by approximately 87.7% since 1989, large amounts of toxic compounds are still emitted into the air from a wide variety of sources including motor vehicles, industrial facilities, household products, area sources, and natural processes. Prioritizing and reducing these emissions further will require a continued, cooperative effort by the public, industry, environmental groups, California Air Resources Board (CARB), and the District.

BACKGROUND

The District is the implementing agency for approximately 3,130 San Diego facilities required to comply with the Air Toxics "Hot Spots" Act. The law requires facilities to submit information that is used to achieve the objectives of the program. For larger industrial facilities, this information includes:

- **Emission Inventory Reports** - Facilities must submit the information needed by the District to prepare a toxic emissions inventory report. The District then prioritizes each facility to determine if a HRA is necessary based upon the amount and toxicity of the reported emissions.

- **Health Risk Assessments** - Facilities required to submit HRAs must determine the level of public exposure to emitted compounds and potential adverse public health impacts. The

State Office of Environmental Health Hazard Assessment (OEHHA) assists the District in reviewing each HRA.

- **Public Notification** - If an adverse health impact exceeding public notification levels (specified in District Rule 1210) is identified, the facility must provide notice to all exposed persons regarding the results of the HRA.

- **Risk Reduction Audits and Plans -** Facilities with emissions that pose a potentially significant public health risk must submit a risk reduction audit and plan to the District. This plan must demonstrate how the facility will reduce health risks below significant levels. The facility must implement the plan as approved by the District.

The Air Toxics "Hot Spots" program has been implemented in phases. Facilities are required to update their toxic inventories at least every four years depending on program status for each facility. The District has developed toxic emission inventory reporting procedures that streamline this process while meeting the requirements of the CARB Emissions Inventory Criteria and Guidelines regulation. For example, facilities are no longer required to perform emission calculations. Instead, the District provides customized inventory forms based upon site-specific equipment information and calculates facility emissions based on process information supplied by the facility operator. Additionally, the District has merged the Toxic Emission Reports with the Criteria Pollutant Emission Reports to eliminate duplicate data requests.

The District has also designed the local program to allow many small businesses to meet inventory requirements more cost-effectively by completing industry-specific reporting forms. The District has standardized and automated many computational and record keeping tasks. In collaboration with the CARB, OEHHA, and other air agencies, generic HRAs have been developed for gas stations, dry cleaners, and auto body shops to assess industry-wide impacts. These program enhancements save businesses time and money.

The District is required to review and approve the data submitted by facilities, compile an inventory of emissions, and publish an annual program report on the region's toxic air contaminant emissions, risk assessment results, and control measures effectiveness. These reports are used by health officials to develop strategies for protecting the public health.

Toxic air contaminant emissions should not necessarily be equated with a significant health risk (cancer or non-cancer) to any individual or the public. The quantity and toxicity of the compounds being emitted and the level of public exposure must be known before drawing conclusions about health risks. This report presents data on emissions from several hundred facilities. In some cases, data on public exposure is still being developed, updated, or reviewed. HRAs have been completed for 79 facilities.

However, exposure to the toxic compounds in question, in sufficient quantities, can cause health problems ranging from relatively mild temporary conditions such as minor eye or throat irritation, shortness of breath, or headaches; to permanent and serious conditions such as cancer, birth defects, or damage to lungs, nerves, the liver, the heart, or other organs.

The District has evaluated at least five toxic emission inventories for most facilities in San Diego County. An estimate of current toxic air contaminant emissions (for calendar years 2007-2012) from all sources, industrial and non-industrial, is presented in Table 1 of this report. Detailed site-specific emission results are provided on the District's website.

PROGRAM DESCRIPTION AND STATUS

The industrial source emission estimates provided in Table 1 are for approximately 3,130 facilities including 1,750 diesel engine facilities, 368 auto body shops, 683 gasoline stations, and 117 dry cleaners. Detailed emission inventories for individual facilities are available on the District's website. Estimates of mobile, area, and natural source emissions prepared by the CARB are also presented in Table 1. Mobile, area, and natural source estimates come from several CARB emission reports. When multiple emission estimates were available, the most recent data was used for a category of source.

Table 1: Estimated Toxic Air Contaminant Emissions - All Sources

Toxic Air Contaminant	Most Recent Emissions from Industrial Sources Estimated for 2012 and later (lbs/yr)	Total Mobile, Area, Natural from ARB (lbs/yr) [1]	Total San Diego County Emissions (lbs/yr)
Ammonia	23,153	13,704,290	13,727,443
Aluminum [2]	6,533	12,121,035	12,127,567
Methanol	9,602	5,312,470	5,322,072
Toluene	154,826	4,261,240	4,416,066
Diesel Particulate [2, 3]	27,684	3,536,120	3,563,804
Xylenes	131,897	3,075,785	3,207,682
Propylene	770	2,783,486	2,784,256
Formaldehyde	60,236	2,518,641	2,578,877
2,2,4-Trimethylpentane	12,883	2,134,035	2,146,918
Acetaldehyde	8,627	1,881,102	1,889,729
Isopropyl Alcohol	165,370	1,437,539	1,602,908
Benzene	13,500	1,465,565	1,479,065
Hexane	67,976	1,112,147	1,180,124
Ethyl Benzene	40,556	805,127	845,683
1,2,4-Trimethylbenzene	96,486	717,938	814,424
Methylene Chloride	30,190	602,661	632,850
Ethylene Glycol	2,208	510,224	512,431
PAH, Unspecified [2]	577	499,564	500,141
Ethylene Glycol Butyl Ether	8,671	457,985	466,656
1,3-Butadiene	1,529	464,800	466,329
Chlorine	490	458,437	458,927
Perchloroethylene	54,000	354,201	408,201
Methyl Ethyl Ketone	47,505	337,063	384,568
Phosphorous [2]	15	258,007	258,023
Acrolein	1,868	249,368	251,236
Dichlorobenzene	250	244,012	244,262
Naphthalene [2]	788	238,432	239,220
Barium [2]	56,498	168,806	225,304
Butanol	175,449	25,716	201,165

Table 1: Estimated Toxic Air Contaminant Emissions - All Sources—Continued

Toxic Air Contaminant	Most Recent Emissions from Industrial Sources Estimated for 2012 and later (lbs/yr)	Total Mobile, Area, Natural from ARB (lbs/yr) [1]	Total San Diego County Emissions (lbs/yr)
1,1,1-Trichloroethane	877	150,398	151,275
Zinc [2]	3,152	125,538	128,690
Manganese [2]	1,038	116,099	117,137
Styrene	8,538	79,133	87,672
Methyl Isobutyl Ketone	32,354	39,548	71,902
Propylene Glycol Methyl Ether	33,427	35,187	68,614
Trichloroethylene	6,759	44,218	50,977
Lead [2]	110	41,803	41,913
Copper [2]	3,342	29,566	32,908
Phenol	3,352	15,183	18,535
Chromium, Non-Hexavalent [2]	216	13,179	13,395
Arsenic [2]	38	8,909	8,947
Cobalt [2]	5	7,447	7,452
Nickel [2]	360	6,627	6,986
Chromium, Hexavalent [2]	6	6,756	6,762
Ethylene Oxide	0	3,766	3,766
Cadmium [2]	21	2,297	2,317
Methyl Methacrylate	1,577	705	2,282
Mercury [2]	40	1,636	1,676
Ethylene Glycol Ethyl Ether Acetate	46	1,496	1,543
Thallium [2]	13	1,360	1,373
Vinyl Acetate	18	1,127	1,145
Chlorobenzene	333	745	1,078
Ethylene Glycol Ethyl Ether	1	1,027	1,028
Selenium [2]	18	1,003	1,022
Dibutyl Phthalate	30	827	856
Methylene Diphenyl Isocyanate	32	562	595
Methyl Tert-Butyl Ether	0	575	575
Silver [2]	23	544	567
Ethylene Glycol Methyl Ether	5	53	58
Propylene Oxide	0	11	11
Cyclohexane	no data available	370,857	Unknown
Silica, Crystalline [2]	131,237	no data available	Unknown
Hydrogen Chloride	53,610	no data available	Unknown
Glycol Ethers, Unspecified	19,080	no data available	Unknown
Hydrogen Sulfide	16,490	no data available	Unknown
Hydrogen Fluoride	10,055	no data available	Unknown
Chlorobenzotrifluoride,para	6,582	no data available	Unknown
Dimethyl Sulfide	5,341	no data available	Unknown
Isocyanates, Unspecified	2,740	no data available	Unknown
Vinyl Chloride	2,393	no data available	Unknown

Table 1: Estimated Toxic Air Contaminant Emissions - All Sources—Continued

Toxic Air Contaminant	Most Recent Emissions from Industrial Sources Estimated for 2012 and later (lbs/yr)	Total Mobile, Area, Natural from ARB (lbs/yr) [1]	Total San Diego County Emissions (lbs/yr)
Ethylene Dichloride	2,072	no data available	Unknown
Sodium Hydroxide	1,787	no data available	Unknown
Chlorofluorocarbons	1,724	no data available	Unknown
Nitric Acid	1,568	no data available	Unknown
Dioxane,1,4-	1,555	no data available	Unknown
Carbon Disulfide	831	no data available	Unknown
Chloroform	818	no data available	Unknown
Acrylonitrile	493	no data available	Unknown
Propylene Glycol	340	no data available	Unknown
Carbonyl Sulfide	323	no data available	Unknown
M-Pyrol	230	no data available	Unknown
Vinylidene Chloride	207	no data available	Unknown
Quinone	162	no data available	Unknown
Carbon Tetrachloride	156	no data available	Unknown
Benzyl Chloride	9	no data available	Unknown
Sulfuric Acid	6	no data available	Unknown
Acrylamide	4	no data available	Unknown
Beryllium [2]	1	no data available	Unknown
Total	**1,555,677**	**62,843,978**	**63,768,984** [4]

1. Emission data obtained from CARB's 2008 California Toxics Inventory.
2. This toxic air contaminant is emitted as a particulate.
3. The estimate of diesel particulate matter emissions are from stationary diesel internal combustion engines only. Individual toxins of diesel particulate matter (i.e., arsenic, cadmium, copper, hexavalent chromium, lead, nickel, selenium, and zinc) from sources other than stationary diesel internal combustion engines are reported separately in above table.
4. Total of most recent available estimates for industrial, mobile, area, and natural sources.

Overall, local emissions of toxic air contaminants from industrial sources have decreased by approximately 87.7% since 1989. The most significant reductions include a variety of solvents and heavy metals. Emission increases are primarily the result of increased usage of reformulated paints, solvents, and gasoline. Emission estimates for some compounds have increased, although the actual emission levels may not have changed. This is due to changes in combustion-related emission factors and newly listed toxic air contaminants not included in initial inventories.

County-wide emissions for non-industrial sources (mobile, area, and natural sources) are presented in Table 1. Emissions for the mobile, area, and natural source subcategories are presented in Table 2. Mobile sources include on-road vehicles, off-road vehicles, trains, mobile equipment, and utility equipment. Area sources include residential and commercial non-point sources such as fuel combustion, entrained road dust, waste burning, solvent use, pesticide application, and construction and demolition. Natural sources include wildfires and windblown dust from agricultural operations and unpaved areas.

Emissions of toxic air contaminants were obtained from CARB's 2008 California Toxics Inventory for non-industrial sources (released in December 2008) which may be found at http://www.arb.ca.gov/toxics/cti/cti.htm.

Table 2: CARB Estimated Toxic Air Contaminant Emissions – Non-Industrial Sources

Toxic Air Contaminant	Mobile Source (lbs/yr)	Area Source (lbs/yr)	Natural Source (lbs/yr)	Total Mobile, Area, Natural from CARB (lbs/yr)
Ammonia	3,872,504	7,802,824	2,028,962	13,704,290
Aluminum	1,697	12,114,847	4,491	12,121,035
Methanol	104,969	488,729	4,718,772	5,312,470
Toluene	3,429,983	831,257		4,261,240
Diesel Particulate Matter	3,536,120			3,536,120
Xylenes	3,039,683	36,102		3,075,785
Propylene	1,879,831	52,499	851,157	2,783,486
Formaldehyde	2,406,814	111,826		2,518,641
Trimethylpentane, 2,2,4-	2,045,047	88,988		2,134,035
Acetaldehyde	969,207	89,599	822,296	1,881,102
Benzene	1,458,295	7,269		1,465,565
Isopropyl Alcohol		1,437,539		1,437,539
Hexane	836,500	275,647		1,112,147
Ethyl Benzene	759,473	45,654		805,127
Trimethylbenzene, 1,2,4-	675,942	41,996		717,938
Methylene Chloride		602,661		602,661
Ethylene Glycol		510,224		510,224
PAHs, Unspecified	384,477	111,909	3,178	499,564
Butadiene, 1,3-	334,291	26,663	103,846	464,800
Chlorine	160,981	258,436	39,020	458,437
Ethylene Glycol Butyl Ether		457,985		457,985
Cyclohexane	347,193	23,664		370,857
Perchloroethylene		354,201		354,201
Methyl Ethyl Ketone	137,455	199,608		337,063
Phosphorus	1,161	254,738	2,108	258,007
Acrolein	158,063	19,635	71,670	249,368
Dichlorobenzene		244,012		244,012
Naphthalene	151,170	87,262		238,432
Barium	51,498	117,308		168,806
Trichloroethane, 1,1,1-		150,398		150,398
Zinc	12,816	92,449	20,272	125,538
Manganese	2,787	112,591	720	116,099
Styrene	74,131	5,002		79,133
Trichloroethylene		44,218		44,218
Lead	7,186	34,151	466	41,803
Methyl Isobutyl Ketone		39,548		39,548
Propylene Glycol Methyl Ether		35,187		35,187
Copper	11,965	17,400	201	29,566
Butanol		25,716		25,716
Phenol	6,537	8,646		15,183
Chromium, Non-Hexavalent	2,246	10,934		13,179
Arsenic	6,714	1,951	244	8,909
Cobalt	1,120	6,327		7,447

Table 2: CARB Estimated Toxic Air Contaminant Emissions – Non-Industrial Sources—Continued

Toxic Air Contaminant	Mobile Source (lbs/yr)	Area Source (lbs/yr)	Natural Source (lbs/yr)	Total Mobile, Area, Natural from CARB (lbs/yr)
Chromium, Hexavalent	6,754	2		6,756
Nickel	2,416	4,210		6,627
Ethylene Oxide		3,766		3,766
Cadmium	852	1,444		2,297
Mercury	86	1,550		1,636
Ethylene Glycol Ethyl Ether Acetate		1,496		1,496
Thallium		1,339	21	1,360
Vinyl Acetate		1,127		1,127
Ethylene Glycol Ethyl Ether		1,027		1,027
Selenium	678	293	32	1,003
Dibutyl Phthalate		827		827
Chlorobenzene	56	688		745
Methyl Methacrylate		705		705
Methyl Tert-Butyl Ether	575			575
Methylene Diphenyl Isocyanate		562		562
Silver	50	389	106	544
Ethylene Glycol Methyl Ether		53		53
Propylene Oxide		11		11
TOTALS	**26,879,326**	**27,297,092**	**8,667,560**	**62,843,978**

Facility Prioritization

The purpose of facility prioritization is to identify facilities that emit toxic air contaminants in amounts that warrant a detailed evaluation of potential public health risks through preparation of a site-specific HRA. Prioritization procedures consider the magnitude of toxic air contaminant emissions from facilities and the toxicity of those emissions, but do not consider the dilution characteristics of a specific facility's exhaust stacks or the expected health risks posed by the emissions. Requiring a facility to prepare a risk assessment does not mean the facility poses a significant risk to public health.

Facilities are placed into three categories: Category A for facilities that are required to prepare and submit a HRA; Category B for facilities that may be required to conduct a HRA at a future date; and Category C for facilities that are not required to conduct a HRA. Ranges of prioritization scores for each category are shown in Table 3.

Table 3: Prioritization Categories

	Prioritization Category		
	A	B	C
Facility Score for carcinogenic compounds	Score $\geq$ 100	1 $\leq$ Score < 100	Score < 1
Facility Score for Non-carcinogenic compounds	Score $\geq$ 10	1 $\leq$ Score < 10	Score < 1

Facilities are reprioritized based on their most recently approved toxic emissions inventory report. Prioritization procedures can be found on the District's website at http://www.sdapcd.org/toxics/prioritize.pdf.

Health Risk Assessments

A HRA is a study of the possible public health risks that may be posed by emissions of toxic compounds. Each facility that has been placed in Category A must prepare and submit a HRA to the District.

The assessment incorporates conservative pollutant dispersion estimates, human exposure assumptions, and health effects information to ensure that the final risk assessments are not underestimated. Accordingly, the results of a risk assessment may overstate actual health risks but are useful in comparing the relative risks of sources and pollutants and setting priorities for mitigation. For example, a risk assessment typically will estimate the increased cancer risk for a hypothetical individual who would remain at the one location with the greatest potential for exposure to toxic air contaminant emissions from the facility for 24 hours a day, 365 days per year, over 70 years.

While the HRA procedures are generally considered to be conservative, some factors that may tend to underestimate impacts are difficult to evaluate. For example, a HRA is based on emission estimates for the indicated inventory year. These emissions are assumed to occur for 70 years to obtain a "lifetime" cancer risk. Years other than the inventory year, in particular for years before this program, may have higher (or lower) emissions. Additionally, the cumulative effect of emissions from other nearby mobile, area, and stationary sources and the potential for complex mixtures of toxic air contaminants to create an additional health problem by their combined reaction to each other cannot be estimated. Also, some facility emission estimates are based on average factors for individual types of equipment and actual emissions may be higher or lower. Finally, the HRA results only include potential impacts from compounds with OEHHA-approved health values. Compounds without OEHHA-approved health values are not included.

CARB lists more than 700 compounds to be assessed under the Air Toxics "Hot Spots" program. The list includes potentially carcinogenic substances as well as compounds that may cause health problems such as respiratory irritation or central nervous system depression. The toxicity varies from compounds that pose concern if more than a few grams are emitted per day, to those that may pose no significant health risks if many pounds are emitted per day. OEHHA reviews and updates the toxicity of the listed compounds. This updated information is then distributed to all groups involved in the program for use in identifying facilities required to prepare risk assessments and in preparing the assessments.

Each HRA is reviewed by the District and OEHHA to identify deficiencies requiring correction. The District then approves, modifies, or returns the HRA for corrections. The results of all risk assessments prepared under this program are available for public review. A summary of the results of the HRAs prepared under this program is presented in Table 4.

Table 4: Health Risk Assessment Results

HRA Evaluation Period	Facility		Max. Lifetime Cancer Risk per million (1)	Lifetime Cancer Burden (2)	Chronic THI (3)	Acute THI (4)
Facilities required to implement a risk reduction plan and conduct biennial public notification.						
2005	S.D. City Miramar Landfill	San Diego	8.5	0.19	2.06	0.37
2008	GKN Chemtronics	El Cajon	0.38	< 1.0	1.57	4.82
Facilities required to conduct biennial public notification.						
2009	Southern California Plating (7, 10)		99	0.03	<0.1	0.2
2003	Pacific Ship Repair	San Diego	41	< 1	0.24	< 0.1
2005	S.D. City Pump Station 2	San Diego	33	< 1.0	0.3	0.1
2009	National Steel & Shipbuilding	San Diego	21.2	0.38	0.57	0.76
2005	USN Air Station/North Island	Coronado	13.5	0.19	< 0.1	0.72
Facilities that have implemented a risk reduction plan and currently have risks below the public notification level.						
1994	Hues Metal Finishing (11)	San Marcos	85	< 0.1	0.66	12
1995	Flame Spray Inc. (11)	San Diego	40	< 0.1	0.14	30
1993	USN Amphibious Base (5, 11)	Coronado	5.3	< 0.1	< 0.1	1.3
1993	Signet Armorlite (5, 11)	San Marcos	4.6	< 0.1	< 0.1	0.47
1994	Senior Flexonics, Ketema Division (11)	El Cajon	4.5	< 0.1	0.02	4.24
2005	Vision Systems (7, 10, 11)	El Cajon	2.7	< 0.1	< 0.1	0.14
Facilities not required to implement a risk reduction plan and not required to conduct biennial public notification.						
1989	Otay Landfill (6, 9)	San Diego	42	0.16	< 0.1	< 0.1
1989	Sycamore Landfill (6, 9)	San Diego	19	< 0.1	< 0.1	< 0.1
2004	City of Oceanside - Water Utilities (6)	Oceanside	8.9	< 0.1	< 0.1	0.69
2004	Southwest Airlines (6)	San Diego	8.8	< 0. 1	< 0.1	0.17
2006	BF Goodrich / Rohr Industries	San Diego	8.7	< 0.1	< 0.1	0.23
1993	Santa Fe Pacific Pipeline (5, 11)	San Diego	8	< 0.1	< 0.1	< 0.1
1994	Continental Maritime	San Diego	7.7	< 0.1	< 0.1	0.44
1993	Southwest Marine (5, 12)	San Diego	7.7	< 0.1	< 0.1	2.1
2003	Palomar Medical Center (6)	Escondido	7.6	< 0.1	0.28	< 0.1
1989	San Marcos Landfill (9)	San Marcos	7.4	< 0.1	< 0.1	< 0.1
1993	Solar Turbines / Ruffin Rd (5)	San Diego	7.3	< 0.1	< 0.1	2.1
1989	S.D. City Pt. Loma Waste Water Treatment. Plant	San Diego	7.3	< 0.1	0.30	1.1
2003	Goal Line (6)	Escondido	7.0	< 0.1	< 0.1	0.06
1993	Solar Turbines / Pacific Hwy (5,12)	San Diego	6.1	< 0.1	< 0.1	3.3
2004	Space & Naval Warfare Systems (10)	San Diego	6.1	< 0.1	< 0.1	0.8
1989	Kelco/Div. Merck & Co. Inc.	San Diego	6.0	0.10	0.40	0.2
1993	Superior Ready Mix / Canyon Rock (5)	San Diego	5.6	< 0.1	< 0.1	0.47
1989	Sony	San Diego	4.5	< 0.1	0.09	0.1
1993	Hanson Aggregates/Nelson & Sloan/7th & Main (5)	Chula Vista	4.2	< 0.1	< 0.1	< 0.1
1989	Vulcan / CALMAT Co. / Hwy 76	Pala	4.2	< 0.1	0.10	< 0.1
2005	USMC Miramar / USN Miramar	San Diego	4.2	0.3	< 0.1	< 0.1
1989	ARCO	San Diego	4.0	< 0.1	< 0.1	0
2003	Kyocera America (12)	San Diego	4.1	< 0.1	0.32	1.6
1993	Hanson Aggregates / Sim J. Harris (5)	San Diego	3.9	< 0.1	< 0.1	< 0.1
1989	Palomar Airport Landfill (9)	Carlsbad	3.9	< 0.1	< 0.1	< 0.1
1993	Hanson Aggregates/H.G. Fenton/East County Mtls (5)	El Cajon	3.7	< 0.1	< 0.1	0.1
1989	Bonsall Landfill (9)	Vista	3.7	< 0.1	< 0.1	< 0.1
1993	Wyroc (5)	Vista	3.6	< 0.1	< 0.1	0.13
1989	Equillon Enterprises / Shell Oil Co / Mission Rd	San Diego	3.3	< 0.1	< 0.1	0
1989	Vulcan / CALMAT Co. / Friars Rd	San Diego	3.3	< 0.1	0.14	0.3
1993	Hanson Aggregates / Nelson & Sloan / Tri Way (5)	Lakeside	3.1	< 0.1	< 0.1	0.1
1993	Hanson Aggregates / H.G. Fenton / Carrol Cyn. (5)	San Diego	2.6	< 0.1	< 0.1	< 0.1
1989	Southern California Edison Co.	San Onofre	2.2	< 0.1	< 0.1	< 0.1
2004	United Airlines (6)	San Diego	2.2	< 0.1	< 0.1	0.11

Table 4: Health Risk Assessment Results—Continued

HRA Evaluation Period	Facility		Max. Lifetime Cancer Risk per million (1)	Lifetime Cancer Burden (2)	Chronic THI (3)	Acute THI (4)
Facilities not required to implement a risk reduction plan and not required to conduct biennial public notification-cont.						
1993	Hanson Aggregates/Nelson & Sloan/Birch Quarry (5)	Chula Vista	2.1	< 0.1	< 0.1	0.1
2003	Neptune Society (10)	El Cajon	2	< 0.1	0.7	0.9
1993	Frazee Paint (5)	San Diego	1.8	< 0.1	0.5	0.5
1989	UCSD Campus	San Diego	1.8	< 0.1	< 0.1	0.4
2003	Veterans Administration Hospital (6)	San Diego	1.8	< 0.1	< 0.1	0.34
1989	USMC Base/Camp Pendleton	Pendleton	1.7	< 0.1	0.14	0.64
1993	Asphalt Inc. (5)	Lakeside	1.3	< 0.1	< 0.1	< 0.1
1989	Vulcan / CALMAT Co. / Black Mountain Rd	San Diego	1.3	< 0.1	0.20	0.4
1994	Ogden Power Pacific	Chula Vista	1.0	< 0.1	0.92	0.21
2005	USN Point Loma Naval Complex	San Diego	1.0	< 0.1	< 0.1	< 0.1
1989	Cabrillo Power / SDG&E / Encina Plant	Carlsbad	0.9	< 0.1	< 0.1	0.1
2005	USN Navy Station, 32nd St.	San Diego	0.9	< 0.1	0.53	< 0.1
1989	Texaco Refining & Marketing, Inc.	San Diego	0.8	< 0.1	< 0.1	0
1993	Hanson Aggregates / South Coast Materials (5)	Carlsbad	0.7	< 0.1	< 0.1	< 0.1
2003	Cabrillo Power II LLC - Kearny Mesa (6)	San Diego	0.6	< 0.1	< 0.1	0.13
1989	Chevron USA Inc.	San Diego	0.60	< 0.1	< 0.1	0
1993	Deutsch Co. (5)	Oceanside	0.4	< 0.1	< 0.1	< 0.1
2004	Pacific Gas Turbine (6)	San Diego	0.3	< 0.1	< 0.1	0.29
1999	Chromalloy San Diego	El Cajon	0.165	< 0.1	< 0.1	< 0.1
1989	San Diego State University	San Diego	0.1	< 0.1	< 0.1	0.5
Facilities with previous health risk assessment results.						
2002	Southern California Plating (7)	San Diego	123	0.04	< 0.1	0.2
2005	Vision Systems (7, 11)	El Cajon	66.3	< 1.0	0.25	5.81
2005	National Steel & Shipbuilding	San Diego	45.6	0.99	0.57	0.88
1993	GKN Chemtronics, Inc. (5, 11)	El Cajon	26	0.12	0.36	20
1993	National Steel & Shipbuilding (5)	San Diego	27	< 0.1	0.3	3.5
1993/1998	USN Air Station/North Island (5, 7, 8)	Coronado	15	< 0.1	0.20	0.8
1993	USN Point Loma Naval Complex (5, 11)	San Diego	28	< 0.1	0.18	0.47
1993	USMC Miramar / USN Miramar (5, 11)	San Diego	24	0.2	0.13	0.81
1993	USN Navy Station, 32nd St. (5, 11)	San Diego	15	0.2	0.11	3
1993	BF Goodrich / Rohr Industries (5)	Chula Vista	7.7	< 0.1	< 0.1	< 0.1
Facilities that have ceased operation.						
1989	General Dynamics / Pacific Hwy	San Diego	1,000	37	3.8	1.0
1995	Palomar Plating (7, 11)	Escondido	364	< 0.1	1.2	N/A
1995	Campbell Marine (11)	San Diego	154	< 0.1	0.83	17
1995	Escon Tool and Manufacturing (7, 11)	San Marcos	41	0.25	0.80	3.1
1989	Powerine Oil Co.	San Diego	32	< 0.1	0.10	0
1989	General Dynamics / Kearny Villa Rd	San Diego	6.5	0.53	0.05	0.3
1989	Knight & Carver Inc. / Hancock St	San Diego	2.8	< 0.1	< 0.1	0.5
1989	Duke Energy / SDG&E / South Bay Plant	Chula Vista	2.1	< 0.1	< 0.1	0.34
1989	Cabrillo Power / SDG&E / 32nd St. Naval Station	San Diego	0.8	< 0.1	< 0.1	< 0.1
1993	Teledyne Ryan Aeronautical (5)	San Diego	0.79	< 0.1	< 0.1	0.12
1989	Cabrillo Power / SDG&E / Naval Training Center	San Diego	0.2	< 0.1	< 0.1	< 0.1
1989	Cabrillo Power/SDG&E Company/USN North Island	Coronado	0.05	< 0.1	< 0.1	< 0.1

1. This column reports the maximum lifetime excess cancer risk estimate at an occupational or residential receptor (whichever is greater) approved by the District. The maximum estimated risk generally is possible at only one location. All other locations show lower risks. This estimate assumes that a person resides at the location of maximum impact 24 hours per day, 365 days per year, for 70 years of exposure or a person works at the location of maximum impact 8 hours per day, 245 days per year, for 40 years of exposure. Actual cancer risk will likely be less.
2. Excess cancer burden is an estimate of the increased number of cancer cases in a population (i.e., all census tracts within or partially within the one in one million isopleth) as a result of exposure to emitted substances. Actual cancer burden will likely be less.

3. Chronic total health hazard index (THI) is the sum of the ratios of the average annual exposure level of each compound to the compound's reference exposure level (REL). Actual chronic THI will likely be less.
4. Acute THI is the sum of the ratios of the maximum one-hour exposure level of each compound to the compound's REL. Actual acute THI will likely be less.
5. Indicates this facility updated a 1989 health risk assessment in accordance with District Rule 1210.
6. HRA results are points of maximum impact. Cancer risk was < 10 in one million, chronic THI was < 1 and acute THI was <1 at all residential, occupational, and commercial locations.
7. This facility successfully implemented a risk reduction program.
8. The cancer and chronic HRA results are based on 1993 HRA. The acute result is based on an updated 1998 acute HRA.
9. This facility has installed landfill gas collection and control systems after the HRA evaluation period.
10. HRA results are from District in-house risk evaluation.
11. This facility conducted public notification in the past but is no longer required to do so.
12. In accordance with Rule 1210, public notification and risk reduction of non-cancer risks with THI less than 5 have been determined to be unwarranted for this facility.

Public Notification and Risk Reduction

Once a HRA has been approved, the Air Toxics "Hot Spots" program requires facilities with risks over specified levels to provide public notice to all exposed persons. In addition, facilities with significant risks are required to reduce risks below the significant risk levels within five years. The California Health and Safety Code does not define "significant risk." The District, in consultation with interested parties, established public notification and significant risk levels (as well as public notification and risk reduction procedures) in District Rule 1210. These levels are presented in Table 5.

Table 5: Public Notification and Significant Risk Levels

	Public Notification Level	Significant Risk Level
Maximum Incremental Cancer Risk	10	100
Cancer Burden	1.0	1.0
Total Chronic Noncancer Health Hazard Index	1.0*	1.0*
Total Acute Noncancer Health Hazard Index	1.0*	1.0*

* A value greater than 1.0 but less than 5.0 would not trigger public notification or risk reduction requirements if the Air Pollution Control Officer determines, after consultation with OEHHA, that adverse public health effects are unlikely to occur at the levels of exposure estimated in the approved public health risk assessment.

In establishing public notification procedures, the District considered input from the California Air Pollution Control Officers Association's *Air Toxics "Hot Spots" Program Public Notification Guidelines* (October 1992), CARB guidance, other regulatory precedents, public workshops, and a local public notification committee consisting of representatives from the District, local industry

and industry groups, academic institutions, and environmental organizations. The procedures are generally consistent with procedures adopted by other California air districts.[1]

Facilities required to perform public notification must distribute notices to each household and business that may be exposed to potential risks exceeding the District's public notification level. Notifications must be issued biennially until the facility demonstrates to the District that it has reduced the potential health risk below the notification thresholds.

As of April 2013, 20 facilities with estimated risks above public notification levels have been required to inform the public of their most recent approved HRA results. Based on the response from the public, four facilities (Flame Spray Inc., National Steel & Shipbuilding, Palomar Plating and Senior Flexonics, Ketema Division) were required to hold public meetings to provide further information regarding their emissions and their HRA results.

Public notification is required biennially based on the most recent approved HRA until it is demonstrated that potential health risks have been reduced below public notification levels. Table 6 lists the facilities currently required to conduct biennial public notification.

Table 6: Facilities Required to Conduct Biennial Public Notification

HRA Evaluation Period	Facility		Most Recent Notification Date
2008	GKN Chemtronics	El Cajon	2013
2009	National Steel & Shipbuilding	San Diego	2013
2003	Pacific Ship Repair	San Diego	2013
2005	S.D. City – Pump Station 2	San Diego	2013
2005	S.D. City – Miramar Landfill	San Diego	2012
2003	Southern California Plating	San Diego	2012
2005	USN Air Station / North Island*	Coronado	2012

* USN Air Station North Island successfully implemented a risk reduction plan for acute risk. The acute HRA result is based on an updated 1998 acute HRA. USN Air Station North Island is required to conduct public notifications for potential cancer risk from a gas station. The cancer and chronic HRA results are based on 1993 HRA.

Under Rule 1210, facilities with potentially significant public health risks must reduce those risks below significant risk levels within five years of the approval of a risk reduction plan. Of the 84 approved HRAs under the "Hot Spots" program, ten currently active facilities had estimated risks above the significant risk mitigation levels. Nine facilities prepared and implemented a risk reduction plan. One facility's risk reduction plan is currently being review by the District. Of all the facilities required to reduce their risks, all but four facilities successfully reduced their risks below public notification levels. The USN Air Station reduced their acute risks substantially but must continue biennial public notification because of residual cancer risks. Southern California Plating and Vision Systems completed the process of implementing a risk reduction plan.

[1] The South Coast Air Quality Management District has revised its cancer risk mitigation threshold to 25 in one million.

Recent and Expected Changes to the Program

Changes to the Air Toxics "Hot Spots" Act in 1992 required that OEHHA develop risk assessment guidelines for the Air Toxics "Hot Spots" Program, including a "likelihood of risks" approach to risk assessment. OEHHA has developed and published a series of Technical Support Documents for the determination of: (1) Acute Toxicity Exposure Levels, (2) Cancer Potency Factors, (3) Chronic Toxicity Exposure Levels, (4) Exposure Assessment and Stochastic Analysis, and (5) *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*. To supplement OEHHA's guidelines, CARB provided *Recommended Interim Risk Management Policy for Inhalation-Based Residential Cancer Risk.*

On February 2012, OEHHA presented a draft version of their Technical Support Document for Exposure Assessment and Stochastic Analyses for public comment. This document addresses the 8-hour RELs, the age sensitive adjustments and updates to the cancer potency. On March 2012, OEHHA approved modified non-cancer health data for nickel with the main effect being the acute toxicity increases 30 times. In April 2013, OEHHA presented possible updates to *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments.* These changes consider the varying breathing rates of different age groups. Accounting for the higher breathing rate of children may result in a cancer risk increase of up to 6 times.

QUALITY OF THE EMISSIONS INVENTORY DATA

The District's website contains approved emission estimates for each facility inventoried. These emissions were determined using several different techniques, depending on the specific processes being evaluated.

Uniform and comprehensive toxic air contaminant guidelines do not exist for many types of processes. In these cases, emissions are estimated by conducting source tests, reviewing previous evaluations of similar operations, comparing materials used, or applying engineering judgment. Accordingly, the quality of emission estimates varies and a direct comparison of relative emissions between facilities may be inappropriate.

In the early stages of the program, hundreds of California facilities undertook similar inventory efforts concurrently, placing a tremendous demand on consultants and source testing firms. At the time, few people had extensive experience inventorying and testing air toxics. For some compounds and processes, test methods had not yet been developed and alternative techniques for estimation had to be used. Where source testing was used, results were sometimes inconsistent between facilities or between several tests of the same exhaust stack. Some test results conflicted with known process information, e.g., stack emissions of trace metals versus fuel composition data.

Some of these problems were related to the initial program startup and have been minimized as experience has been gained. Other problems are inherent to measuring very small quantities of trace compounds and applying emission results from tests conducted over relatively few hours to a whole year of operation. Also, where the District had reason to suspect actual emissions of a toxic air contaminant reported as non-detectable, the District used the CARB-recommended practice of estimating the emission based on one-half the detection limit. Accordingly, consideration should be given to these issues when comparing emission estimates and any

inferred health risks. The accuracy of the reported values can vary widely and current emission estimates may differ greatly from previously reported values.

AIR TOXICS CONTROL MEASURES

The control of air toxic contaminants is required through federal and state laws, and by local regulations. The District has been delegated authority from the U.S. Environmental Protection Agency (EPA) to locally administer federal National Emission Standards for Hazardous Air Pollutants (NESHAPs). Additionally, the District administers state Airborne Toxic Control Measures (ATCMs) that pertain to stationary sources.

At the federal level, the 1990 Clean Air Act (CAA) Amendments require EPA to develop nationwide control measures for air toxics. The Federal CAA now lists 187 substances as hazardous air pollutants (HAPs), and EPA develops NESHAPs for large and small sources of HAPs. Under state law, newly adopted federal NESHAPs become state ATCMs automatically unless the state elects to adopt a separate regulation.

At the state level, CARB continues to develop ATCMs under the Toxic Air Contaminant Identification and Control Program (AB 1807 or the Tanner program). Once adopted by CARB, local air districts must implement the emission reduction measures pertaining to stationary sources.

During this report period, the District performed outreach and worked with affected sources to ensure compliance with federal NESHAPs and state ATCMs. Additionally, the District continued to enforce local rules designed to reduce air toxic contaminant emissions, as well as District rules to control criteria air pollutants and their precursors.

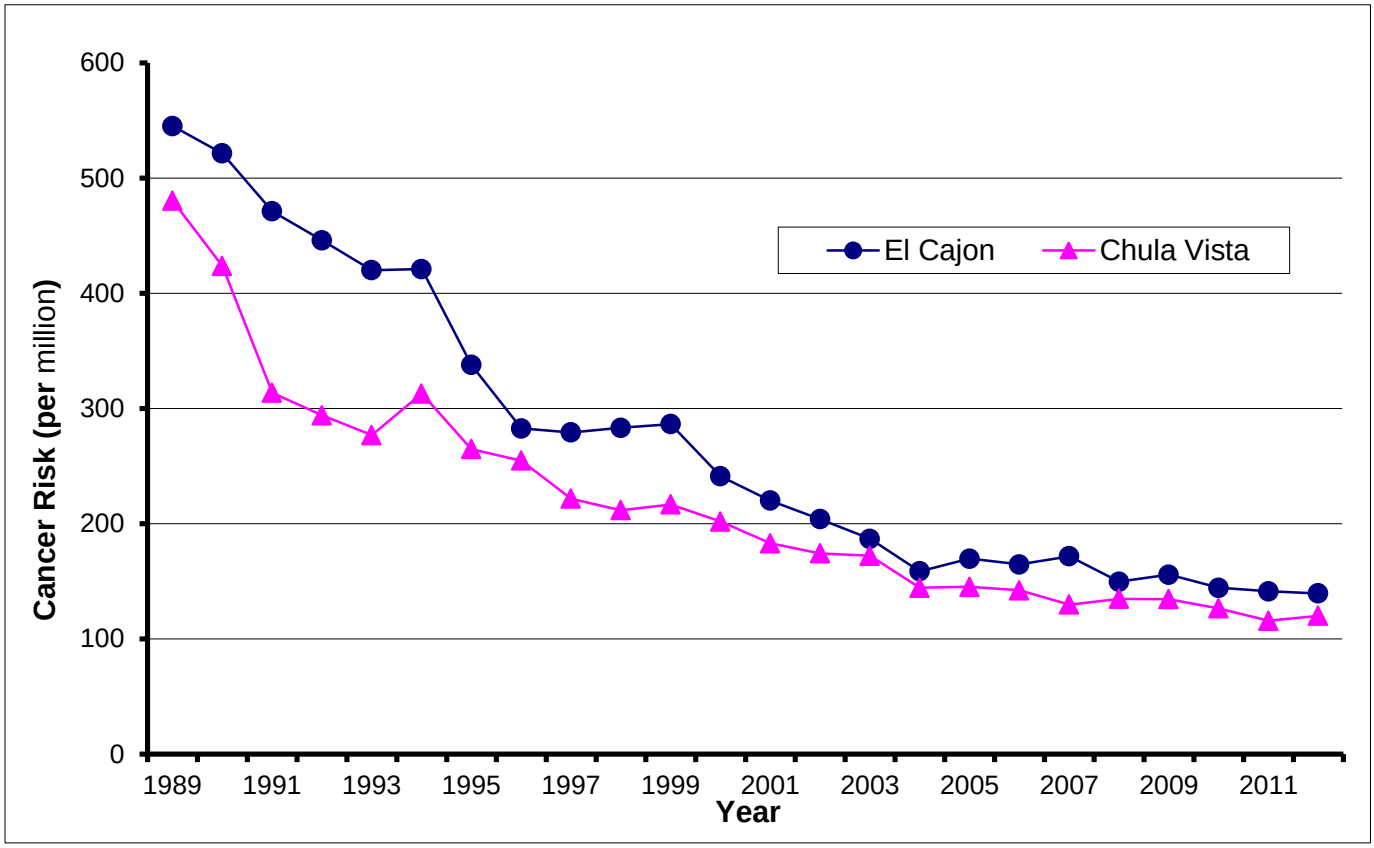
TOXIC AIR CONTAMINANTS AMBIENT MONITORING

The District started sampling for toxic air contaminants at the El Cajon and Chula Vista monitoring stations in the mid-1980s. This work, which is carried out in collaboration with CARB, provides information on ambient levels of a number of organic and inorganic toxic compounds. Integrated 24-hour air samples are performed once every twelve days by the District. CARB staff analyzes the samples and validates the data. The CARB publishes detailed toxic sampling results from all California monitoring sites on its website (http://www.arb.ca.gov/adam/toxics/sitesubstance.html). A summary of the CARB-approved results for the two San Diego County air toxic monitoring stations is provided in Figure 1.

Excluding diesel particulates, a 77.0% reduction in the ambient incremental cancer risk from air toxics has been measured in Chula Vista and a 74.4% reduction in El Cajon since 1989 as shown in Figure 1. The estimated risk was 120 in one million for Chula Vista and 139 in one million for El Cajon in 2012, down from 481 and 545 in one million, respectively, in 1989.

Diesel particulates also contribute significantly to ambient risk levels. Although a method does not exist to directly monitor diesel particulate concentrations, CARB has suggested methods that can be used to estimate diesel concentrations. Based on District measurements of elemental carbon taken at El Cajon, Escondido, and San Diego between August 2008 and June 2010, diesel particulate emissions could add an additional 354 in one million to the ambient risk levels in San Diego County. CARB estimates that risk from diesel particulate decreased by about 50% from 870 in one million since 1990.

Figure 1 – Toxic Air Contaminant Incremental Cancer Risk
(excluding diesel particulate matter from engines)



CONCLUSIONS

Industrial facilities still emit large quantities of toxic air contaminants although emissions from industrial sources have been reduced by approximately 87.7% since 1989. Based on the most recent estimates, those sites inventoried emit less than 1.55 million pounds of toxic air contaminants annually (down from approximately 2.5 million pounds in 2005). Motor vehicles and area and natural sources are also key contributors of toxic air contaminants, emitting more than 62.5 million pounds as reported by CARB's 2008 CTI. Tables 1 and 2 provide the current inventories of toxic pollutants for stationary, mobile, area, and natural sources. The majority of local facilities are in compliance with current District emission standards, which now focus on both criteria air pollutants (e.g., volatile organic compounds, oxides of nitrogen, particulate matter) and toxic air contaminants. Estimated emissions of toxic air contaminants from industrial sources have decreased by approximately 11 million pounds since 1989.

Current and future air quality programs at the local, state, and federal levels will further reduce toxic air contaminants emissions. Measures to reduce vehicle trips and miles traveled will reduce toxic emissions, which result from the burning of gasoline. Measures to reduce emissions of volatile organic compounds as ozone precursors will also decrease emissions of toxic volatile organic compounds.

State ATCMs are reducing emissions of diesel particulate matter from engines, perchloroethylene from dry cleaning operations, hexavalent chromium from electroplating operations, hexavalent chromium and nickel from metal deposition operations, and toxic metals from metal melting operations. Federal emission control programs have produced dramatic emission reductions of chlorofluorocarbons and methyl chloroform. The District also requires best available control technology for many new and modified sources of toxic air contaminants.

Approximately 11 million pounds of industrial emission reductions have been quantified in San Diego County between 1989 and 2013. Ongoing implementation of the toxic air contaminant control program *Air Toxics "Hot Spots" Program* will continue to reduce local public health risks associated with emissions of toxic air contaminants. Those efforts will improve information on levels of exposure and risk as well as identifying compounds, processes, and facilities that are potentially causing significant risks.

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